

Appl. No. 10/808,168
Reply to Examiner's Action dated September 15, 2005

IN THE CLAIMS:

1. (Currently Amended) A method for manufacturing a semiconductor device, comprising:

forming a protective layer over a polysilicon gate electrode located over a substrate to provide a capped polysilicon gate electrode;

forming source/drain regions in said substrate proximate said capped polysilicon gate electrode;

removing said protective layer using an etchant;

siliciding said polysilicon gate electrode to form a silicided gate electrode; and

siliciding said source/drain regions after siliciding said polysilicon gate electrode.
2. (Original) The method as recited in Claim 1 further including forming a silicide blocking layer over said source/drain regions prior to said siliciding said polysilicon gate electrode.
3. (Original) The method as recited in Claim 2 wherein forming a silicide blocking layer includes growing a silicide blocking layer using a dry oxidation process.
4. (Original) The method as recited in Claim 2 wherein forming a silicide blocking layer includes growing a silicide blocking layer using a low temperature radical oxidation or plasma oxidation process.

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5. (Original) The method as recited in Claim 2 wherein forming a silicide blocking layer includes forming a silicide blocking layer having a thickness ranging from about 2 nm to about 10 nm.

6. (Original) The method as recited in Claim 1 wherein said protective layer is a silicon nitride protective layer.

7. (Original) The method as recited in Claim 6 further including forming a sidewall spacer adjacent said capped polysilicon gate electrode that includes a nitride layer wherein said nitride layer is of a different chemical composition than said silicon nitride protective layer.

8. (Original) The method as recited in Claim 7 wherein said nitride layer has from about 5% to about 10% carbon content.

9. (Original) The method as recited in Claim 1 wherein said silicided source/drain regions extend under at least a portion of gate sidewall spacers located adjacent said silicided gate electrode.

10. (Original) The method as recited in Claim 1 wherein the protective layer has a thickness ranging from about 5 nm to about 50 nm.

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11. (Withdrawn) A semiconductor device, comprising:
a silicided gate electrode located over a substrate, said silicided gate electrode having gate sidewall spacers located on sidewalls thereof;
source/drain regions located in said substrate proximate said silicided gate electrode; and
silicided source/drain regions located in said source/drain regions and at least partially under said gate sidewall spacers.

12. (Withdrawn) The semiconductor device as recited in Claim 11 wherein said silicided source/drain regions extend from about 2 nm to about 10 nm under said gate sidewall spacers.

13. (Withdrawn) The semiconductor device as recited in Claim 11 wherein said silicided source/drain regions have a thickness ranging from about 10 nm to about 30 nm.

14. (Currently Amended) A method for manufacturing an integrated circuit, comprising:
forming semiconductor devices over a substrate, including;
forming a protective layer over a polysilicon gate electrode located over said substrate to provide a capped polysilicon gate electrode;
forming source/drain regions in said substrate proximate said capped polysilicon

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gate electrode;

removing said protective layer using an etchant;

siliciding said polysilicon gate electrode to form a silicided gate electrode; and

siliciding said source/drain regions after siliciding said polysilicon gate electrode;

and

forming interconnects within dielectric layers located over said substrate for electrically contacting said semiconductor devices.

15. (Original) The method as recited in Claim 14 further including forming a silicide blocking layer over said source/drain regions prior to said siliciding said polysilicon gate electrode.

16. (Original) The method as recited in Claim 15 wherein forming a silicide blocking layer includes growing a silicide blocking layer using a dry oxidation process.

17. (Original) The method as recited in Claim 15 wherein forming a silicide blocking layer includes growing a silicide blocking layer using a low temperature radical oxidation or plasma oxidation process.

18. (Original) The method as recited in Claim 15 wherein forming a silicide blocking layer includes forming a silicide blocking layer having a thickness ranging from about 2 nm to

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about 10 nm.

19. (Original) The method as recited in Claim 14 wherein said protective layer is a silicon nitride protective layer.

20. (Original) The method as recited in Claim 19 further including forming a sidewall spacer adjacent said capped polysilicon gate electrode that includes a nitride layer wherein said nitride layer is of a different chemical composition than said silicon nitride protective layer.

21. (Original) The method as recited in Claim 20 wherein said nitride layer has from about 5% to about 10% carbon content.

22. (Original) The method as recited in Claim 14 wherein said silicided source/drain regions extend under at least a portion of gate sidewall spacers located adjacent said polysilicon gate electrode.

23. (Original) The method as recited in Claim 14 wherein the protective layer has a thickness ranging from about 5 nm to about 50 nm.